

Hobbies

WEEKLY

December, 29th 1943.

Price Twopence

Vol. 97. No. 2515

A MODEL STAGE

IT is some time since we have given an article in these pages on how to make a Model Theatre. So with the help of explanatory detailed illustrations we are going to tell our workers the best way to set about the making of the attractive model shown.

The model consists of a large proscenium and deep stage, with side walls and top. Then from the side extension of the front an angle wall is added each side to add to the appearance and give the effect of an actual stage end of a real theatre. A strip of stout card may be added across the top to act as ceiling.

Dimensions

The full width of the model is 23ins. while the height from floor to top is 14ins. The stage is raised 2ins. above floor level, and is open at the back to accommodate the battery or batteries for the stage lighting.

A glance at Fig. 1 will make the construction of the stage and back-stage quite clear, and for this work we shall require wood about 3/16in. or 1/4in. thick.

The stage is a shallow box 14 1/2ins. long, 5 1/2ins. from back to front and 2ins. deep. There need be no front or back to the box. The back, however, will later be fitted with a partial back used as the switch board for the lighting.

Note from Fig. 1 that the stage

itself does not extend right to the front, but falls short of this by 1/2in. to allow the lights (footlights) to throw their beams upwards and on to the stage. It must be pointed out now, that in front of the framework shown in Fig. 1 stands the proscenium front shown in Fig. 2. This can be fixed later when all the work shown in Fig. 1 has been carried out.

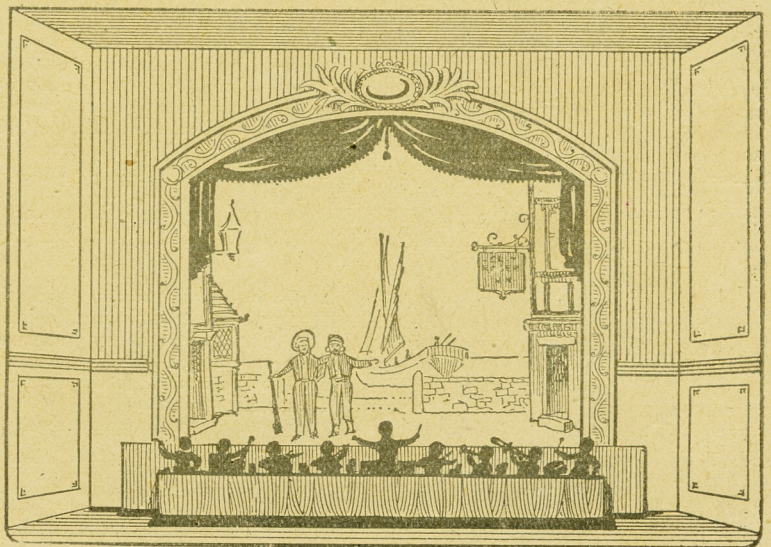
In the two sides of the stage there are slots cut for the support of the side wing scenery. The fretsaw will be

used for cutting these slots, and indeed used for cutting off all the parts which go to make up the stage frame and its proscenium.

The ceiling will fit on top of the sides after an oblong panel piece has been cut in it as shown. To strengthen the walls and ceiling, some small angle plates, made from strip brass or iron and drilled to take screws, should be added in places along inside.

The two holes marked A near the front edge at the top of the sides are to take the electric bulbs for lighting the proscenium, while the two bulbs seen each side at the ends of the stage form the footlights before mentioned.

The design of the proscenium and front is shown in Fig. 2. Set it out and then cut it out with the fretsaw. The actual opening to be cut in the front measures 12ins. wide and 10ins. high, the curve being set from a 10in.



radius from the centre point indicator. That part in front of the stage will be painted on while the decoration round the opening will also be drawn and painted in oil or water colour.

The whole front should, if possible, be of 3/16in. plywood covered with a white paper before the cutting is done. If however, wood cannot be got for this then stout card must be used, strengthened in places with wood strips behind.

Effective lighting of the stage from the top lights and the footlights will make for the attractiveness of the model, and some care and attention to detail will have to be given if a satisfactory result is to be looked for.

switched on at one time by turning over the two switches, or the lamps may be switched on in pairs. Above each switch therefore the letters "S" and "P" should be printed so they may be distinguished at a glance.

Cotton-covered wire is used and held to the woodwork by small staples made by cutting the heads off ordinary household pins and bending them with small pliers. If two batteries can be obtained then they should be linked together in series and the bulbs wired from them.

The bulbs may be fixed in their respective places by first making the holes for them almost the size of the screw-portion of the bulb, and then

the proscenium front should be lined with white paper or painted matt white. Some of our ingenious workers will no doubt like to fit coloured glass screws to work in front of the top proscenium lights, and so make them interchangeable to get a coloured scenic effect on the stage.

Various other gadgets and methods of decoration may suggest themselves to the worker as he proceeds with his model. To quote only one as an added decoration, he could, by means of modelling clay, make a very attractive centre-piece for going above the proscenium arch. This is suggested in our sketch of the finished model.

The arch moulding round the opening, too, could well be decorated

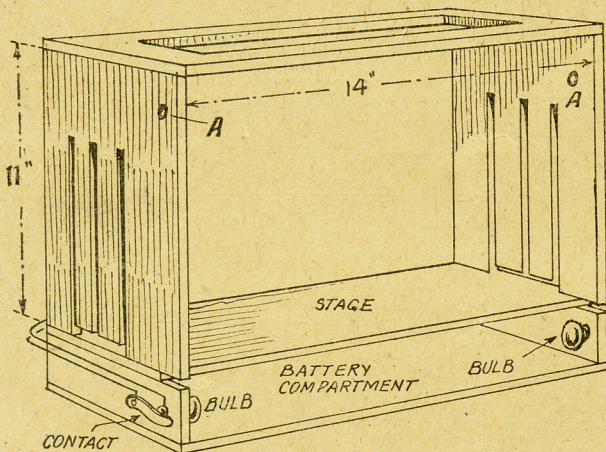


Fig. 1—General layout of the complete stage framework

Ordinary four-volt flash-lamp batteries may be housed under the stage and the flex to the switch and the lamps taken round neatly at the sides of the stage and inside the proscenium.

Switches

The method of forming the two switches is shown in Fig. 3. The space under the stage may be partitioned to take the batteries held by small wooden blocks. The switches are formed by running in two roundhead brass screws for the contacts, with two switch handles made from strip brass held also by small brass screws. To the back of them are wound the bared ends of the flex wire to form the circuit.

By carrying out the wiring of the circuit at Fig. 4, all fourlights may be

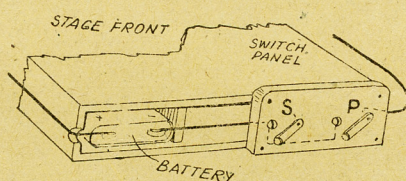


Fig. 3—Arrangement of battery and switches

gently screwing them in. If, however, the ready-made bakelite bulb holders can be bought, then this would save a lot of trouble as the wiring connections can be simply made by the screws provided, and the need for making brass strip connectors as shown in Fig. 1 would not arise.

To get the most brilliant effect from the lights, the inside surface of

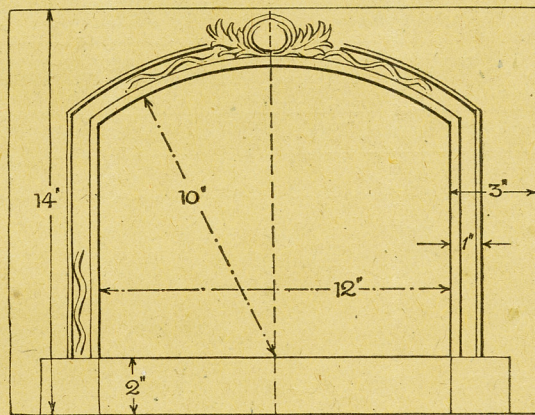


Fig. 2—Details and dimensions of the stage front

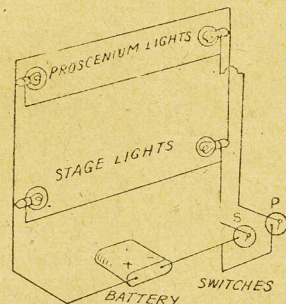


Fig. 4—The wiring diagram

in relief as shown, in modelling clay. The drop-curtains, with suggestions for scenes, etc. will be dealt with in a concluding article.

Model Shed—(Continued from opposite page)

The chimney stack is made from dowelling. For the stack you need a piece of 3/16in. or 1/4in. diam. stuff about 1in. long. The top is made by glasspapering a conical point on a piece of 3/16in. diam. dowelling and then cutting it off squarely. Simply glue it to the end of the stack.

To fix upon the roof, find the position and make a hole right through (upright with the slope of the roof) with a bradawl, then drill the

3/16in. or 1/4in. hole necessary. Having that done, the stack is glued in place.

Complete the work by adding the lintel to the side door. There is no need to add a lintel to the small end door, unless desired.

To colour the work, enamel the roof dark blue, with the sides and base grey, including the stairway. The doors are enamelled dark green. The chimney is black.

If constructing the model solely

as a house, the roof is painted bright red, the doors green, the sides and ends and stairway stone, with the base grey. The chimney and hand rail is black.

It is advisable to paint the work first prior to fixing in the windows. Unless you are careful and use a thin pencil brush, you are apt to paint the windows while treating the edges of the apertures. You overcome this by adding the windows themselves afterwards.

For Railway or 'Drome lay-out a pleasing addition is a MODEL SHED OR HOUSE

THE little model shed or house illustrated is quite a suitable piece of work for addition to a railway or to an aerodrome, or can even be used by itself as an independent model. It stands only $3\frac{1}{2}$ ins. high and can even be turned into a suitable money box. The roof is a loose piece which fits down over the wheels and as such, provides an open interior of small dimensions. As you see in Fig. 2 there is the suggestion for it to act as a container for two flat pocket flash-lamp batteries. This suggestion may come in useful to keep the model as a store for these or, of course, if you are using a layout of any kind incorporating miniature electric lighting.

Wood $\frac{1}{16}$ in. thick is used throughout, except in the case of the stairway at the end of the model. You can, however, either cut it out from $\frac{1}{8}$ in. wood or else build it up from $\frac{1}{16}$ in. layers (seven pieces in all to make seven steps) $\frac{1}{16}$ in. wide.

As a Money Box

If you want the model as a money box a slot ($1\frac{1}{2}$ ins. by $\frac{1}{8}$ in. wide) could be cut in the base.

The roof would be built in the same way, but it would be secured by driving single flathead or roundhead screws through the end gables into the roof angle blocking fillet.

Thus, to take out the savings, it is only necessary to withdraw the screws. A little house like this is an attractive affair when enamelled and set on a cabinet or mantelpiece.

Building the Model

Although simply constructed, the parts must be cut squarely and accurately. We give you one side and an end piece at Figs. 5 and 6. The

other side and end is shaped as shown at Figs. 1 and 3.

Note that the tenon of one side piece (see dotted lines) must be longer than the other, as shown by the mortises cut in the base (Fig. 7).

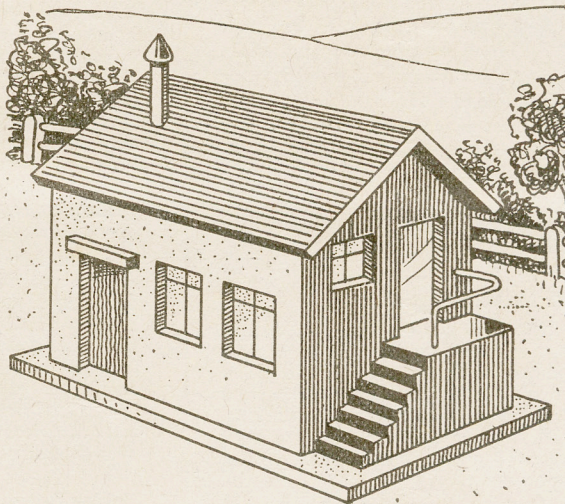
Having cut out the sides and ends neatly, glue them together, then fix down to the base. Be sure to do this as soon as you have the structure parts adhered together so the lot will dry quite squarely.

When dry, glass-paper the wood to level off the corner joints. The end and side door apertures must be covered on the inside with thin wood (a layer or ply from plywood is ideal, but stiff cardboard would also serve).

Windows

The window spaces must be covered with tissue paper upon which the "frames" have been inked on in black ink. When attaching the paper, apply a thin smearing of glue around the window apertures (on the inside) and then press the paper on truly. Do not worry about undue wrinkles appearing, as these will dry out.

If you are making a model doll's house out of the article, celluloid (with the frames scored on and filled in with black ink or black lead) should be adhered to the interior side of the window apertures, or transparent paper could be used. Get the size of the frames by pinning the material



over a drawing and inking directly over same.

The Stairway

The stairway is shaped from a solid block of wood $\frac{1}{16}$ in. thick by $\frac{1}{8}$ in. wide by $\frac{1}{8}$ in. deep. You can form the seven steps easily enough with a penknife.

Attach the prepared stairway to the end gable, keeping it flush at the back (see Fig. 3). A railing is bent to the

MATERIALS REQUIRED

- 2 side pieces—4 by 2½ ins. by ½ in.
- 2 end pieces—3½ by 2½ ins. by ½ in.
- 1 base piece—4½ by 2½ ins. by ½ in.
- 2 roof pieces—4 by 2 ins. by ½ in.
- 1 roof angle block—3 ins. by ½ in. wide
- 1 step block—2 ins. by 1 in. by ½ in.
- 1 step piece (altive.)—4 by 2 ins. by ½ in.
- 1 piece dowel—1½ ins. by 3/16 in.
- 1 piece dowel—1½ ins. by ½ in.

shape shown from a large paper clip or a hairpin. Holes are drilled for the ends in the gable and stairway so they can be forced in correctly; push the railing into the gable first, then into the stairway platform.

Roof Construction

The roof consists of two pieces of wood $3\frac{1}{2}$ ins. long by $1\frac{1}{2}$ ins. wide and $1\frac{1}{8}$ ins. wide respectively. Glue the latter flush under the former (see Figs. 1 and 2), then add the angle block. This is ½ in. wide, 3 ins. long.

The angle block fits between the "points" of the gables. It must, therefore, be shorter than the ends of the roof pieces by ½ in. as shown at Fig. 4. It is the blocking which holds the roof pieces firmly together, but if necessary, drive thin pins into the edges of the roof pieces to add further strength.

(Continued foot of opposite page)

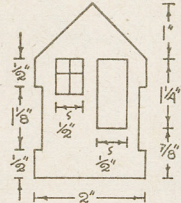
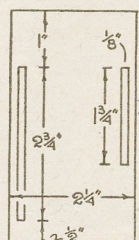
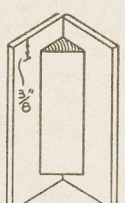
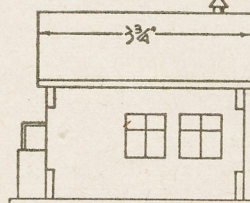
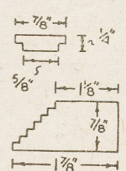
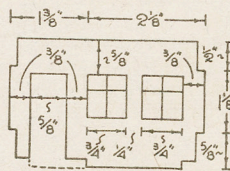
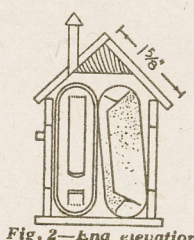
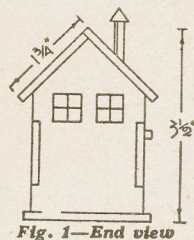


Fig. 3—A back view

Fig. 4—Roof assembly

Fig. 7—The base

Fig. 8—End details

How you can easily make quaint INNER TUBE FIGURES

MANY interesting and worthwhile articles can be made from so-called scrap materials. Old rubber inner tubes which are adaptable to a variety of uses fall into this class of material.

The animals in the accompanying illustrations are made from red rubber decorated with indian ink. This type of toy seems to be most interesting to make.

The Pattern First

In the construction of rubber animals the first step is to draw a pattern of the animal that one wishes to make. After the outline pattern is drawn cut out patterns for the ears, tail, tongue and the like are then tested on the outline pattern for appearance.

If the body and detail parts are well proportioned and fit together well they are then ready to be traced on the rubber. If certain preliminary operations are performed on the inner tube first, the work of tracing and cutting will be comparatively easy.

First take a pair of strong scissors and cut the valve out and then slit the tube down the centre. The pattern may then be laid on the tube and traced with a soft pencil. Care must be taken that all pieces are so cut that when fastened together the outside will all be of the same finish or texture.

Checking Parts

When all are cut the rubber pieces are placed in their correct relation to each other and the edges are given a final checking to make sure that they fit properly. The features and lines of expression are sketched in lightly with a pencil and the button eyes are sewn.

Most children prefer something which will stand alone and this can be accomplished very easily by

cutting a rubber bottom or foundation

The next step in making is very important for on it depends the durability and finished appearance. The rubber pieces may be put together in the following ways. They may be cemented together or they may be sewn. Sewing seems to work easily well with young people.

Sticking and stuffing

If cement or glue is used care must be taken that the adhesion is applied evenly and that the edges contact firmly until dry.

The animal may then be stuffed with cotton or torn rags, the bottom fastened on and the ears, tail, tongue and other parts either applied flat or fastened in slits made in the body and the decorative markings gone over carefully with indian ink.

Making Drums

Drums for small children are easily made by drilling a hole in a thick piece of wood and paring the outside to follow the lines of the inside. Cut a circle of inner tube 3ins. larger than the circle skin. Then tack this circle rubber tightly across the top and down the side of the wood.

Drums can be made by securing round tin cans and cutting off the end. The outside of the can is painted a solid colour and left to dry. Next two circles of inner tube rubber 6ins. larger than the top of the can are cut. Perforations about 2ins. apart and 1in. from the edge are punched in the rubber circles.

Holding the Heads

A rubber circle is then placed over each end of the drum cylinder and laced together with a heavy cord run through a perforation, first in one end then in the other, until the entire two rubber circles are laced down tightly.

In the type of articles outlined in the foregoing the cost of material is negligible. It is ingenuity and workmanship that counts in the final result.

Do YOU know that—

A Birch Tree having 200,000 leaves will give off 700 to 900 gallons of water daily in hot weather? Most other plants give off a quantity of water (one could term it perspiration) equal to their own weight in the course of a warm day, all of which proves that plants are the world's heaviest drinker.

In An Average Middle-aged Man there are over 300,000,000 pores in the glands of his skin to allow evaporation? During a seven-hour night's sleep, it is estimated, he will give off 2½ pounds of body moisture.

The World's Oldest Book is said to be a volume recently discovered in China? It consists of seventy-eight wooden pages fixed together with cord; it dates back to 100 B.C.

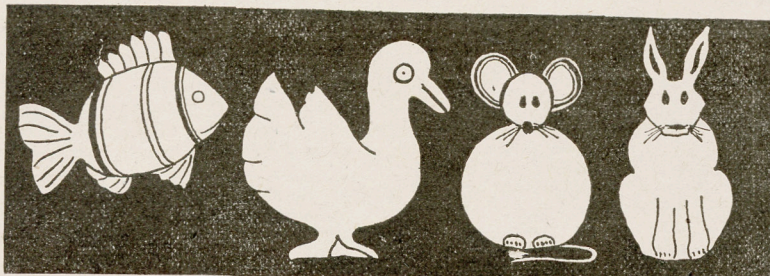
Two Separate Hearts are possessed by an eel? One heart beats 60 times a minute, while the other one beats 120 times per minute.

A Flying Fish does not actually fly? It merely glides in the air, supported by its long fins which help it to rise out of the water. When the wing-like fins become dry, the fish drops back into the sea.

A Hundred Years Ago a strange object was seen floating down the River Hooghly which proved to be a stone statue of the Virgin Mary that was once the figurehead of a Portuguese schooner? The figure now reposes in the Roman Catholic Church at Bandel, Bengal. It is impossible to say why the stone statue floated on the river which, incidentally, is one of the most important branches into which the Ganges divides on approaching the sea, but thousands go annually to pray at its feet and numerous requests are supposed to be answered. The discovery, strange to say, was made on an Easter Day!

In Pre-war Days, at the London Zoo, eight gallons of special oil was required in order to give each elephant its annual "beauty" bath? Now, no doubt, this oil is being used to "clean up" Europe of dirty Nazis!

The Electric Eel will kill a fish as big as itself? The eel, obtaining a hold on its victim, brings its tail round in a circular fashion to some other part of the creature it is attacking, thereby completing a circuit. The victims are killed instantly in this manner.



Some examples of quaint figures of fish and animals for making as suggested above.

Entertain and mystify your friends with some of these SIMPLE PARTY TRICKS

THE following are simple, amusing tricks which should make everyone present sit up and take notice.

No real skill is wanted—just a “mystic air” which is easily created by actions and speech. Moreover, only odds and ends serve as equipment, thereby cutting down any expense.

The Magnified Pencil

This trick is usually carried out in India, with a big glass water bowl and a sword. In your case, however, any small glass article, such as a globular decanter or a vase having a neck narrower than its body, will serve, whereas a pencil will serve as a sword.

Now, place the decanter on the table and proceed to fill it with raw rice, letting handfuls trickle into the vessel until it is nearly full. Meantime, keep tapping the decanter lightly on the table so the rice “settles” in it properly.

While doing this, you can make mystic passes and mumble magical words. The pencil is then pressed down into the vessel, gradually working it down through the rice until its end reaches the bottom.

Assuming you have not “jogged” the pencil, you should be able to lift up the decanter of rice by the pencil and carry it around the room for all to see. The pencil, apparently, has become magnetised.

The decanter, rice and pencil can be inspected by all “un-believers” and they can be allowed to try it for themselves, but not knowing the secret, i.e., being careful not to insert the pencil crookedly or jog it, they are almost certain to beg for an explanation.

The Magical Cork

An ordinary cork, preferably clean and new, is dropped on a table and stands on its end every time. No one, excepting yourself, can perform this simple, yet amazing feat.

Naturally, there is a trick behind it. It is all in the way the cork is held and dropped. It should be held horizontally about a few inches from the table. When released, it falls gently on the table and invariably “kicks” itself on to its end.

Spectators, as you will find, hold the cork upright prior to dropping it. That’s where they all go wrong, nine times out of ten. Therefore, always make a point of concealing the manner in which you hold the cork with your fingers as much as possible. Of course, a little practice is necessary before you can gain mastery of the trick.

Powerful Fingers

By way of contrast, you can tell your audience that it is possible to lift a person from the ground by means of five fingers. It is quite unlikely that anyone will believe you, until you demonstrate it in the following way.

Ask some one in the audience to stand before you as the subject to be lifted. Now, ask two other people to put their index fingers under the instep of the subject’s shoes. Two other persons put a finger under each elbow, while you place your forefinger under the chin of the subject.

At a signal given from you, the four helpers—including yourself—attempt to raise the subject by the fingers stated—and find you can do it very easily. The subject, of course, must hold himself rigid; your finger is the one that keeps him from falling “out of the perpendicular,” as well as helping to raise his weight from the ground. Boys are advised to attempt the trick only with boys, whereas men, in all fairness to the trick, must attempt it with men.

The Immovable Card

Hand a member of the audience an ordinary cotton thread spool and a tram ticket, with a pin sticking . . . through its centre. Tell him (or her) to place the tram ticket on top of the spool so the shank of the pin enters the hole and allows the tram ticket to lie flat.

You now make a few magical passes at the tram ticket, then explain to your victim that, by putting the bottom end of the spool over his mouth (the head must be tilted backwards so the spool stands upright, with the tram ticket resting on top) and blowing hard

through the hole in the spool, it is impossible to shift the tram ticket.

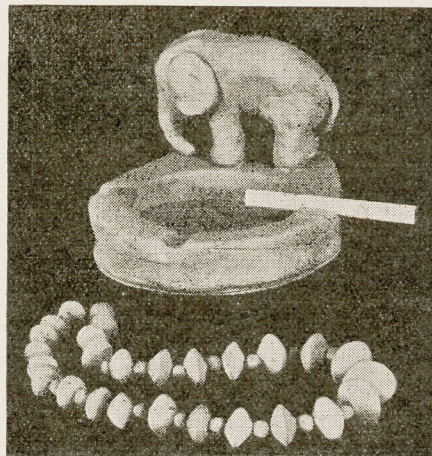
As you will find, nobody will believe you—it seems too simple. However, no matter how much a person can puff and blow, the tram ticket remains a fixture. The secret of the strange behaviour of the tram ticket lies in the fact that the escaping air acts as a vacuum, or suction; the harder one blows, the harder the suction at the top of the spool.

Turning The Card

Another variation of the above trick is played on a table. Get another tram ticket, or a small piece of thin card about the same size and, having bent two tiny flaps at the ends, set it on the table. “I now challenge anyone present to blow this card over on its other side,” you announce, somewhat impressively.

“I’ll take you up on that, old man,” someone is sure to say. Having nodded consent, you request him to blow only at the edge of the card, not endwise. This he (or she) proceeds to do, but the card merely jumps about and will not turn over.

MAKE NEW YEAR GIFTS AT HOME



With Pyruma Putty Cement, the home plastic that bakes stone hard, you can make ashtrays, beads, toys and models of every description. From 1/3 a tin upwards, obtainable from your nearest Ironmonger. Hobbies Shop, Bassett-Lowke Depot.

Write for
Illustrated
Instructions
on model
making

EST. 1857

J.H. SANKEY & SON, L^{TD}

ILFORD

ESSEX

"Now watch closely," you smile, and muttering some weird mumbo-jumbo, you bend over the table and emit a sharp puff of air a short distance away from the card, such as 12ins. to 18ins. The puff of air, travelling along the surface of the table, gets beneath the "wings" of the card and turns it over easily.

Assuming this trick is put over and effectively, few will notice that you do not blow near the card.

Thumb-tying Mystery

This, your best trick, should be performed last of all. Put your arm through the back of a chair and bring your hands together, palm to palm, so all fingers touch. Have a length of cord lying ready on the chair seat. Pick it up and place it across the top edge of the left hand below the thumb.

While doing this, keep speaking to the audience, then suddenly look up at the ceiling and murmur; "I call upon you, O Spirit of Mystery, to release me from my simple bonds!" While saying this, place the rest of the cord over the right hand as you did with the left hand.

The Trick

The string should then stretch from thumb to thumb. Before bringing the hands together (as you would hold them in prayer), curl the little finger of the right hand over the cord, then bring the palms of the hands, together, the little finger, drawing a lot of "slack" cord between the palms.

Looking at your hands, it would seem the cord is merely passing

beneath the thumbs, with the ends hanging free at each side. The whole procedure is carried out quickly, following which you ask a spectator to tie your thumbs tightly together. This is done, whereupon you—owing to the amount of "slack" in the cord quickly release your thumbs from their bonds.

Description

That queer business of suddenly gazing at the ceiling and murmuring a lot of hooey, so to speak, is so much eye-wash to delude the audience who, of course, human-like, will also look up at the ceiling, perhaps only for a fleeting second, but in that second you make the fast move already stated. The quicker you can perform this trick, the better you will deceive your audience.

An evening's job with odds and ends makes a MORSE PRACTICE BUZZER

THIS simple outfit can be made in an evening, using no special materials; it does not give such a high and powerful note as that associated with the valve oscillator, but is ideal for practice being both cheap and easy to make. The original buzzer and key made some months ago still functions perfectly after many hours of hard use.

The drawings are half the full size and thus all measurements should be doubled. The base is of wood, preferably $\frac{1}{2}$ in. in thickness, $5\frac{1}{2}$ ins. square. The tapper key is fixed to the small block of hardwood (J), which is screwed to the base as shown.

Key and Bar

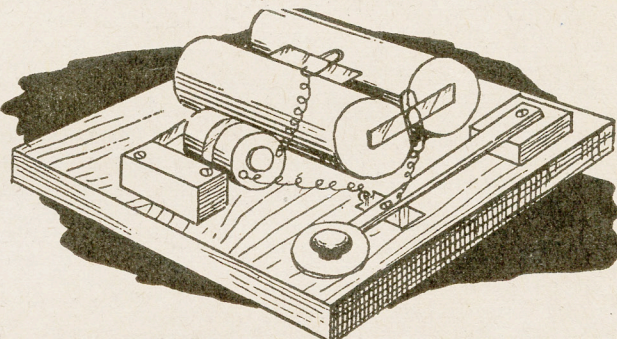
The actual bar of the key (H) is to be cut to size as indicated in the side and plan views. Oak strip or other

hard wood is best if available.

The key bar has three holes drilled in it and is attached to the block (J), by a single screw which passes through into the baseboard (see side view of the keys). The second screw (A), is the contact and has a wire running from it to the battery as illustrated.

The third screw runs up into the key bar, through a circular disc of plywood (G), and a short metal collar into a round wooden knob (F). This combination produces the handle of the key.

Beneath the contact screw (A), is a small piece of tinplate (K), which is pinned to the baseboard and connected by a length of wire, as indicated, to one lead of the magnet (C). The magnet itself may be removed from an old bell and



is shown at C fixed to the base with a strip of tin-plate screwed down at each side.

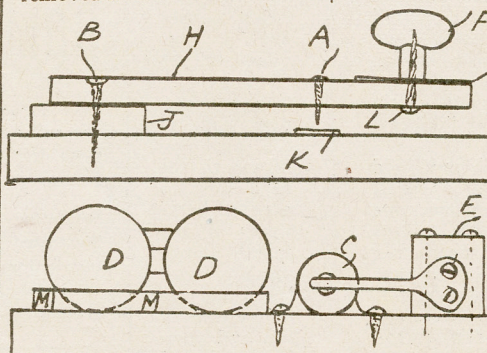
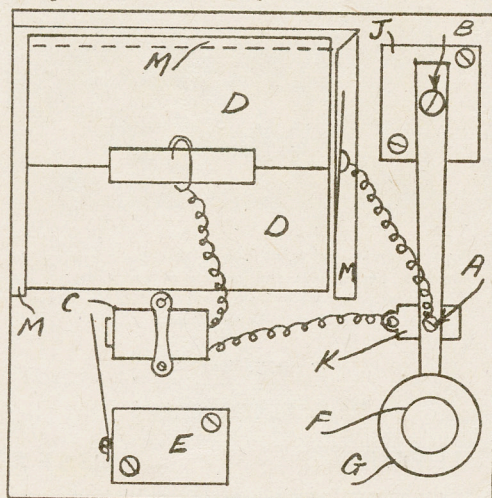
The other contact on the magnet is attached to the battery, as illustrated with wire twisted tightly round an ordinary paper clip and pushed on the metal strip of the battery.

The block of wood E has a strip of tin-plate cut to the shape shown in the side elevation sketch and attached to the block by two screws.

This creates the "buzz" which is varied in note by the tension of the screws.

The battery (D), an ordinary cycle-lamp type, is placed as indicated and bordered by the thin wood strips (M), glued to the base.

When erected the key may be depressed and tested, making sure that screw (B), is driven tightly home. The screw (A), being easily adjusted to vary distance between plate (K), and screw's point until position is found.



Here are some worth-while hints for carpenters on THE USE OF THE CHISEL

MOST of our readers at some time or another, have to handle the popular cutting tool, the chisel, and many of them are constantly using them on their work. Unfortunately it is also a habit of many to use them incorrectly, and not pay due regard to the value of usefulness of such a tool.

First of all, a little knowledge about them should be of assistance in order to prevent using the wrong tool or by the wrong method. There are, for instance, three principal types in use by the wood-worker—the firmer chisel, the paring chisel, and the mortise chisel.

Variety of Sizes

The first mentioned is the most common in use, the other two are essential in a complete carpentry kit. The width of the blade varies from 1/16in. rising by 16ths. to 1/2in., and then from 1/2in. rising in 8ths. to 1in., and from 1in. to 2ins. rising in 1/4ins.

Obviously the average handyman does not need a complete range of these—even if they are now possible to obtain. He should, however, have as many as he can afford because the using of the right width saves time and much labour.

The Widest Chisel

For instance, if you are cutting a 1in. wide slot and only have a 1/4in. chisel, it means making five sawcuts and four chisel operations. If you have a 1/2in. chisel you can do the same work with three sawcuts and two chisellings. The most generally useful for the amateur are probably the 1/2in., 3/4in., and 1in., a combination which makes possible most ordinary work.

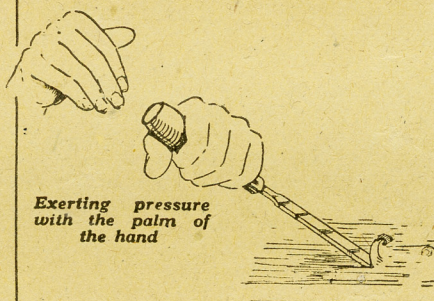
One of the most important things, of course, is to keep the chisel quite sharp, and a suitable oilstone is necessary for this purpose. With a sharp chisel it is a pleasure to cut—a dull tool never does good work. The sharp tool will cut through the wood smoothly and easily; the dull tool

merely gashes the wood and takes an extra amount of labour in being pushed through.

A paring chisel is used for the work implied by its name, and a mortise chisel was formerly used in the mortise and tenon joint.

When using the chisel, be sure to see that the wood is fixed firmly either in a vice or against the bench stop, or held flat to the bench by a clamp. Loose wood is probably the cause of more accidents with the chisel than anything else.

If you are paring the end of a piece of wood, then of course, the chisel is held upright with the work laid on the bench. In an operation of this kind, do not attempt to take off too much at one stroke, but rather slide



the chisel across, and gradually pare away shavings until the required result is obtained.

Extra Pressure

Frequently the normal work with the chisel can be done by pressing it through the wood, but extra pressure can be given by holding the chisel with the left hand and tapping the back end of it firmly with the palm of the right. Do not, however, overdo this, or the palm will become sore. A better plan, of course, is to use a mallet—never a hammer.

In cutting out a slot such as that for a mortise joint, be sure to have the chisel the correct width of the slot, and work from two directions, gradually getting deeper with each stroke. Here again it is inadvisable to take out too much of the wood at one effort.

In cutting this slot, begin at the centre and work towards the end.

Tap the chisel in from almost a vertical position with the mallet going from the centre to each end in rotation.

Cutting Hints

Do not force the chisel in too hard, or it will stick and you will have to wriggle it about possibly to get it out. In doing this, you will find the edges of the slot are becoming damaged. When the last cut is made, the chisel must be held quite vertically in order to get a clean shaving down the side of the hole.

Remember, too, that if you put the chisel actually on the line, it may cut a little into it, and the hole consequently become larger than needed.

Get used to holding the chisel firmly, but always take care that the fingers are never near enough to the blade to get cut should the chisel slip.

Cutting a Groove

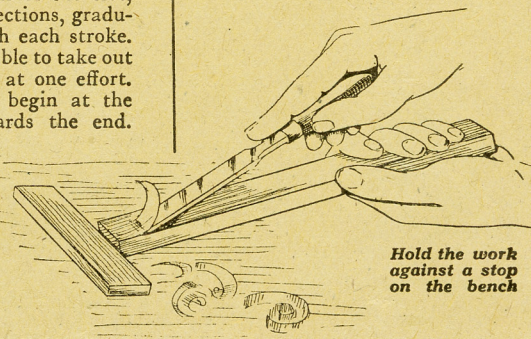
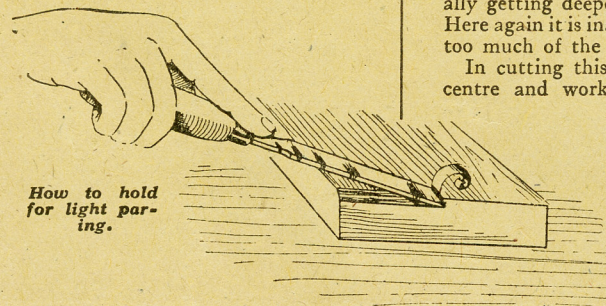
The cutting of a flat wide groove is possibly one of the troubles of the inexperienced. It seems difficult to keep the blade of the chisel flat enough to cut a smooth even surface, which is essential in such joints as the halving.

If you have not attempted this before, it is worth making a trial on some odd wood so that you can get the "hang" of it. Then, too, in cutting this slot, remember to begin from both sides.

If you go straight across from one side only, the steel will push its way out on the opposite side, and so probably tear off some of the wood. You can use the chisel half way from one side, turn the wood round and continue the other half until the flat even bed is obtained.

The great point in all work of this kind is to have absolute control of your tool and your work. If the wood keeps sliding about, something is sure to happen.

If you do not hold your chisel firmly, it is going to slip and again something is going to happen.



Here are some practical hints for beginners in MAKING MODEL PLANES

MANY model makers may figure shy of starting to make model planes because they are not sure of the tools and the materials required. This handicap should not deter the enthusiastic worker if he has a scrap box and a few essential, but not expensive tools.

A wide variety of model aircraft can be made with the following tools, even if you have to use the kitchen table as the bench. You need a fretsaw, tenon-saw, small pair of pliers, small plane, a couple of small files, penknife and glasspaper.

The Best Wood

The best woods to use are American whitewood, satin walnut, and basswood. These are close grained hardwoods, easy to cut and work into shape and can be brought to a clean finish with glasspaper. They do not require much filler and undercoating to obtain a perfect surface. Avoid all knotty and resinous pieces.

Wood supplies are short but if you will look around in second-hand shops you can pick up discarded mahogany shelves or oddments of cupboards or other suitable items.

Fixatives

Satin walnut is ideal for small slender tailplanes and fins and rudders which must stand up to a certain amount of shaping and filing. Slick, well-shaped edges can be obtained especially for exhibition models.

A little good glue is the best policy for making these models where you may be limited to a few odd half-hours for this work. Seccotine or Durofix will be useful for sticking non-porous surfaces such as transparent covers and gun turrets.

Plastic wood is another good stand-by but only use this for medium-sized parts, such as gun blisters, turrets, air-coolers, etc., Larger sections, such as fairings and fins should be shaped out on thin wood acting as a "core" and then the plastic wood built around and shaped with the fingers.

Your scrap box should be another great asset. Collect oddments of tin, wire, cotton reels, pins, beads, button moulds, and so on. These can be found most useful for wireless masts, pitot heads, coolers, machine guns and so on.

Oddments to use

Oddments of cotton reels can be shaped up into turrets, engine sections, etc. Reels are made of very soft wood and a variety of all types should always be collected from friends. If you are short of these, approach the local dressmaker.

Hollowing the Cockpit

One of the more difficult operations when making fuselages is hollowing out the cockpit enclosures. Unless one has a number of small gouges, etc., a rough job is the usual result. A simple method is to make up the fuselage blank from a number of slats

cut to the rough fuselage outline. The centre slats can then be cut away as required before gluing the sections together.

A much more realistic method of marking panels on engine cowlings than the frequently adopted scoring of the wood, is to glue in place small pieces of thin paper cut to the shape of the required panel. Leave a small gap between each panel and, to add realism, pinpricks can be made to represent fastening studs. Where the panels are curved in two planes, the paper can be soaked in water and "worked" into place.

Cutting the Paper

Paper again can be used to represent a fuselage of wood and fabric construction as in the Hurricane. The paper is first cut to shape and then scored on the inside with a pencil to represent the stringers. This method can also be used to suggest fabric-covered control surfaces.

Oleo legs of undercarriage can be made out of small dowels around which thin strips of paper are wound to give the different thicknesses. Even one thickness of paper when painted silver shows up to a surprising degree.

The best results, of course, are only obtained by the greatest care and patience in painting. Do not use thick unwieldy brushes to get thin lines. Use a very fine brush for this or even a pen with thinned paint.

To prevent overlapping of colours cut out masks or stencils in paper.

A NEW YEAR CROSS-WORD PUZZLE

CLUES ACROSS.

1. We wish you a happy new one. 4. Expect you'll be turning over a new one. 7. Each year sees the war nearly this. 9. We hope you have plenty. 11. Not out. 12. Holds up a tree. 13. Sergeant-

Major (abbr.). 15. At the side of. 16. You all use them. 18. Mind what you say . . . people. 19. He built the Ark. 20. A useful "nanny." 22. Alternatively. 24. A child's thanks. 26. Scottish for "yes." 27. One man's this is another man's poison. 29. Often caused by greed. 30. To fall short.

CLUES DOWN.

2. The lot of us. 3. We are this where Hitler's fate is concerned. 4. The Italians have learnt this. 5. Short for "editor." 6. The end.. 8. It is drawing closer around the enemy. 10. A negative answer. 14. Keep a cheery one. 15. They let the car out of it. 17. Similar to 6. 21. Mussolini dreaded Italian one. 23. Royal Air Force (abbr.). 25. Take everything. 27. Short for "mister." 28. Same as 24 across.

Solution to Last Week's Puzzle

X	M	A	S	T	R	E	E	S	
E	P	A	N	P					
D	R	E	A	M	S	D	U	E	
R	H	I	K	E	N				
E	Y	E	S	L	T	D			
A	V	A	S	E	S	O			
R	A	I	N	C	A	R	D		
L	I	L	Y	W	I	C	E		
Y	D		T	I	P	H	A		
		H	I	N	T	S	R		

Solution Next Week

1	2	3	4	5	6
		7	8		
9	10			11	
	12			13	14
15			16		17
18				19	
20			21		
			22	23	24
25					
26			27		28
				29	